

ABSTRACT OF THE DISCLOSURE

A micromirror driver for simultaneously and independently controlling a resonant frequency and an amplitude of a micromirror. A micromirror having a plurality of grooves is supported in rotation by an elastic body. Base electrodes having a comb shape are affixed to the grooves and along an edge of the micromirror. A plurality of driver electrodes also having a comb shape are respectively engaged with the base electrodes in a gear like arrangement to electrostatically interact with the micromirror in response to applied voltages. An amplitude and a frequency of the micromirror are controlled by varying a magnitude or a waveform of one or more electrode voltages or by varying a phase between voltages applied to at least two electrodes. Accordingly, greater driving forces, a larger rotation angle of the micromirror, and independent control of amplitude and resonant frequency of the micromirror are obtained.